Enter the Following New Claims:

--24. A measuring apparatus, comprising:

at least one microsensor having:

at least two chambers gastightly sealed off to the environment and filled with a gas;

a channel fluidically connecting said at least two chambers to one another; and

a detection device disposed in said channel for detecting a gas stream flowing in said channel due to different pressures prevailing in said at least two chambers.

25. The measuring apparatus according to claim 24, wherein:

said detection device has a heating/cooling element; and

said detection device is at least one of heated and cooled by said heating/cooling element to a measurement temperature differing from a temperature of said gas in said chambers.

26. The measuring apparatus according to claim 24, wherein:

said detection device has an output; and

said detection device supplies an electrical measurement signal at said output in reaction to a detected change in a temperature of said detection device, the change in temperature taking place due to said gas stream flowing between said chambers through said channel.

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27. The measuring apparatus according to claim 24, wherein said heating/cooling element is one of the group consisting of an electrical heating resistor, a heating transistor, and a heating diode.

28. The measuring apparatus according to claim 24, wherein said heating/cooling element is a Peltier element.

29. The measuring device according to claim 24, wherein said detection device is a thermoelement.

30. The measuring apparatus according to claim 24, wherein said detection device is a heating/cooling element.

31. The measuring apparatus according to claim 24, including:

a reference channel opening only in one of said at least two chambers; and

a reference detection device having predetermined electrical properties and being disposed at said reference channel.

32. The measuring apparatus according to claim 24, wherein:

said detection device includes an additional detection device with predetermined electrical properties and an output;

said additional detection device is at least one of heated and cooled by the gas stream and:

supplies an electrical measurement signal at said output in reaction to an altering of the gas stream temperature by said detection device at a measurement temperature when the gas stream travels in a direction from said detection device to said additional detection device; and

supplies no measurement signal at said output when the gas stream travels in a direction from said additional detection device to said detection device.

33. The measuring apparatus according to claim 31, wherein said detection device and said reference detection device are connected together in a measuring bridge circuit.

34. The measuring apparatus according to claim 31, wherein:

said microsensor has at least one wall with an edge region; and

both said detection device and said reference detection device are disposed at said edge region of said wall.

35. The measuring apparatus according to claim 34, wherein both said detection device and said reference detection device are disposed in said edge region of said wall.

36. The measuring apparatus according to claim 34, wherein both said detection device and said reference detection device are disposed on said edge region of said wall.

37. The measuring apparatus according to claim 31, wherein:

said microsensor has at least one wall; and

both said detection device and said reference detection device are formed of said wall.

38. The measuring apparatus according to claim 32, wherein:

said microsensor has at least one wall with an edge region; and

both said detection device and said additional detection device are disposed at said edge region of said wall.

39. The measuring apparatus according to claim 38, wherein both said detection device and said additional detection device are disposed in said edge region of said wall.

40. The measuring apparatus according to claim 38, wherein both said detection device and said additional detection device are disposed on said edge region of said wall.

41. The measuring apparatus according to claim 32, wherein:

said microsensor has at least one wall; and

both said detection device and said additional detection device are formed of said wall.

42. The measuring apparatus according to claim 34, wherein said wall is of semiconductor material.

43. The measuring apparatus according to claim 38, wherein said wall is of semiconductor material.

44. The measuring apparatus according to claim 24, wherein:

said microsensor has a semiconductor substrate; and

at least one of said chambers and said channel are formed in said substrate.

a) add 45. The measuring apparatus according to claim 31, wherein:

said microsensor has a semiconductor substrate; and

said reference channel is formed in said substrate.

46. The measuring apparatus according to claim 32, wherein said additional detection device is disposed at said channel.

47. The measuring apparatus according to claim 24, wherein at least one of said chambers has an elastic diaphragm effecting the gastight seal from the environment.

48. The measuring apparatus according to claim 24, wherein:

said microsensor is a plurality of microsensors disposed in a matrix in rows and columns; and

said microsensors are to be driven by a drive circuit.

49. A method for producing a measuring apparatus having at least one microsensor, which further comprises:

forming a measuring device monolithically in a substrate by:

forming at least two chambers with at least one channel connecting the chambers;

forming a detection device in the channel for detecting a gas stream flowing in the channel, the gas stream arising due to different pressures prevailing in the chambers;

filling the chambers and the channel with a gas;

gastightly closing the chambers with respect to the environment; and

forming a reference channel opening only into one of the chambers.

50. The method according to claim 49, which further comprises carrying out the closing step by flowing a covering material over the chambers, the channel, and the reference channel and not fully filling any one of the chambers, the channel, or the reference channel.

51. The method according to claim 50, which further comprises carrying out the closing step by flowing the covering material in the presence of a gas intended to fill the chambers and the channel in the filling step.

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52. The method according to claim 50, wherein the covering material is of borophosphorus silicate glass.

53. The method according to claim 49, which further comprises:

fabricating each of:

the chambers;

the channel;

the reference channel;

the detection device;

a reference detection device; and

at least one additional detection device,

in the substrate according to the following steps:

coating the substrate with a sacrificial layer;

patterning the detection device, the reference detection device, and the additional detection device and leads for the detection device, the reference detection device, and the additional detection device on the sacrificial layer;

applying a second sacrificial layer;

applying a covering layer;

forming holes in the covering layer at least partially in regions under which at least one of the chambers, the channel, and the reference channel are to be produced; and

etching out the first and second sacrificial layers through the holes to produce at least one of the chambers, the channel, and the reference channel.

54. The method according to claim 53, wherein the sacrificial layer is SiO_2.

55. The method according to claim 53, which further comprises carrying out the patterning step by etching the detection

device, the reference detection device, the additional detection device, and the leads on the sacrificial layer.

56. The method according to claim 53, wherein the covering layer is of polycrystalline silicon.

57. The method according to claim 53, which further comprises:

carrying out the closing step by flowing a covering material over the chambers, the channel, and the reference channel and not fully filling any one of the chambers, the channel, or the reference channel; and

prior to closure by the covering material of at least one of the chambers, the channel, and the reference channel, applying a blocker layer on at least a portion of areas produced in the substrate and forming the chambers, the channel, and the reference channel, the blocker layer at least reducing diffusion of the filling gas into surrounding semiconductor material of the substrate.

58. The method according to claim 57, which further comprises preventing diffusion of the filling gas into surrounding semiconductor material of the substrate with blocker layer.--